Proposal for Enhanced Commissioning Agent Services

CITY OF BRISTOL

Memorial Boulevard Intra-District Arts Magnet School

November 16, 2018

ORIGINAL

BVH integrated services

Connecticut: 206 West Newberry Road, Bloomfield, CT 06002, ph. (860) 286-9171

Massachusetts: One Gateway Center, Suite 701, Newton, MA 02458, ph. (617) 658-9008

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Civil

Site Utilities

Structural

Mechanical

Electrical

Plumbing / Fire Protection

Technology

Commissioning

Building Envelope

November 16, 2018

City of Bristol
Roger D. Rousseau, Purchasing Agent
Purchasing Department
111 North Main Street, 2nd Floor
Bristol, CT 06010

Re: Enhanced Commissioning Agent Services
Memorial Boulevard Intra-District Arts Magnet School

Dear Mr. Rousseau:

BVH Integrated Services, P.C., is pleased to present our proposal and qualifications to provide Enhanced Commissioning Agent Services for the renovation of Memorial Boulevard Intra-District Arts Magnet School in Bristol. As demonstrated in our submission, **BVH meets all the minimum requirements stated in the Request for Proposals (RFP) and offers extensive commissioning experience, particularly for school projects that required adherence to Connecticut High Performance Building Standards and were similar in size and scope.** Our proposal and any cost projections will remain in effect for 120 days after the due date specified in the RFP dated October 22, 2018.

PROFESSIONAL QUALIFICATIONS

BVH offers a Commissioning Department of 14 full-time professionals, comprising of LEED Accredited Professionals, Certified Commissioning Professionals, Building Envelope Specialists, Professional Engineers, and NEBB Certified Professionals, all of whom dedicate 100% of their time and expertise to providing commissioning services. Led by **Commissioning Project Manager Daniel Morin,CCP, NEBB CP, BSC, LEED AP; and Commissioning Providers Colin Dunbar, CCP, LEED AP and Christopher Bonczek,** our proposed team will lead the commissioning process through the various phases. Our experienced team understands the project goals and is committed to this project from project start to finish.

CAPACITY OF THE FIRM

This project will benefit from BVH's full complement of design engineers highly experienced in the design and turnover of public school facilities. BVH is a 120-person, multi-disciplined engineering firm, offering civil, structural, mechanical and electrical engineering design services. Our integrated approach gives us an in-depth understanding of drawing detail and design, which strengthens our commissioning efforts. Our engineers can assist with our peer review efforts, problem solving, and any documents necessary for resolution to open items.

RELEVANT EXPERIENCE

This project will also benefit from BVH's extensive experience with relevant school projects. A large percentage of our commissioning experience is for repeat education clients, a testimony to the high-quality services we consistently provide. Our commissioning portfolio encompasses multiple school

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projects including those designed to comply with LEED building guidelines or the State of Connecticut's High Performance Building standards. A brief listing of relevant projects includes:

- New Haven Middle School, New Haven, CT
- ACES Little Theater, New Haven, CT
- CREC International Magnet School for Global Citizenship, South Windsor, CT
- M.D. Fox School, Hartford, CT
- Amistad High School, New Haven, CT
- Platt & Maloney High Schools, Meriden, CT
- Eastern Connecticut State University Fine Arts Center, Willimantic, CT
- University of Notre Dame O'Neill Hall of Music, Notre Dame, IN

UNIQUE APPROACH

Most notably, and what distinguishes us most from other firms, is how we carry out functional testing. **BVH personnel organizes, manages and witnesses all systems and equipment tests and document our review of their performance.** We don't ask contractors to test their own equipment/systems and submit paperwork on those tests for our review. We are hands-on field technicians with years of building systems and building controls experience. BVH has been performing professional commissioning services since 1990 and we are eager to apply our experience to this project.

We look forward to working with you on this exciting and important project. Should you have any questions or would like additional information, please feel free to contact me.

Sincerely,

Lindsay Huff CES, P.C.

Lindsay Huff, CCP, LEED AP
Associate Principal, Director of Commissioning

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BVH integrated services

VENDOR INFORMATION &

COMPANY PROFILE

Vendor Information

A. Vendor Overview

Please provide the following:

- The name and location of your company, including the office location that will be serving the City.
  206 West Newberry Road
  Bloomfield, CT 06002

- A brief general description of your business.
  BVH Integrated Services, PC, is a multi-disciplined consulting engineering firm. Founded in 1958, we've grown to become a regional firm with a national reach and a diverse portfolio of award-winning projects.

  From Mechanical, Electrical, Plumbing/Fire Protection, Civil, and Structural engineering services to Sustainable Design, Commissioning, and Technology Design, we've integrated people and disciplines together. As thousands of successful buildings, structures, and complex campuses show, BVH brings it all together to create a better project.

  A leading engineering firm at the forefront of technology, BVH uses sophisticated high-tech products that apply the very latest concepts in building information modeling (BIM) to support design, construction, project scheduling, and cost control. Our software includes Revit, AutoCAD Civil 3D, Bluebeam, SKM Power Tools, Navisworks, BIM 360, eQuest, RAM Structural System, and InfraWorks 360.

- The number of years your company has been in business.
  BVH Integrated Services, P.C. has been in business for 60 years. The firm has been providing Commissioning Services for 28 years.

- Is your company a subsidiary of another corporation? If so, what is the name of the parent company?
  No. BVH is not a subsidiary of another corporation.

- The number of personnel employed by your company (please include the number of staff dedicated to provide requested services).
  BVH has 120 dedicated employees on staff of which 14 provide Commissioning and Building Envelope services.

- The primary line of business of your firm.
  BVH is a multi-disciplined consulting engineering firm providing mechanical, electrical, plumbing/fire protection, civil, and structural engineering services and commissioning, building envelope and technology design services.

Vendor Information *Page 2*

B. Client Base

Provide specific reference information for five (5) clients you have served, relevant to the work proposed, to include:

- ACES Little Theater, New Haven, CT
- Year Completed: 2014
- Gary Shettle, ACES Asst. Executive Director, Finance & Operations, (203) 498-6835

- University of Notre Dame, Notre Dame, IN
- Year Completed: 2018
- Mark Hummel, P.E., Asst. Director of Utilities & Maintenance, (574) 631-4452

- Eastern Connecticut State University, Windham, CT
- Year Completed: 2016
- Victor Ciancetta, Turner Construction Company, (203) 783-8800

- Southington Public Schools (Depaolo & Kennedy Middle Schools), Southington, CT
- Year Completed: 2016
- Peter Romano, Jr., Director of Operations, (860) 628-3200 ext. 206

- Roberto Clemente Learning Academy, New Haven, CT
- Year Completed: 2011
- Web Grouten, Gilbane Building Co., (203) 946-2812

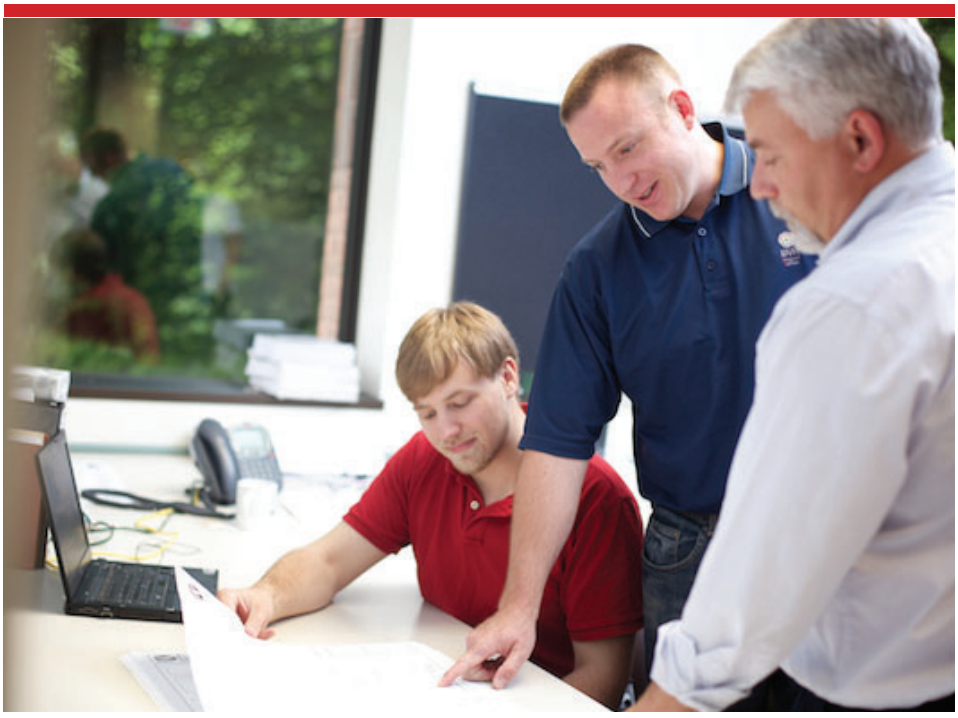
Company Profile

Serving clients since 1958, BVH is a multidisciplined engineering firm with over 120 dedicated employees on staff. Recognized for its leadership on successful building and commissioning projects, the firm is a leader in sustainable design, with Professional Engineers, LEED Accredited Professionals, Certified Commissioning Providers, Building Envelope Experts, and Energy Modelers on staff.

In addition to a knowledgeable, professional engineering staff with experience across the disciplines, BVH's team has a unique and successful approach to every project. At BVH, a project isn't a collection of different drawings, phases, and consultants — it's one design, one team, and one goal. With this unified approach, the multidisciplinary team shares knowledge across the disciplines and efficiently plans, designs, manages, and delivers high quality project results.

Civil • Structural • Mechanical • Electrical • Plumbing/Fire Protection

Technology • Commissioning • Building Envelope



Firm Information:
Professional Service Corporation, Privately Owned
Years in Business: 60
Years Providing Commissioning Services: 28

BVH Leadership:
Thomas St. Denis, P.E., LEED AP, President
Karl F. Frey, P.E., Chief Executive Officer
Gregory H. Van Deusen, P.E., Senior Vice President
Alan Vanags, P.E., LEED AP, Vice President
Jeffrey Cichonski, P.E., LEED AP, Vice President
Mark Allyn, P.E., Vice President
James Ohlheiser, P.E., Chairman of the Board
George Iskra, P.E., Board Member

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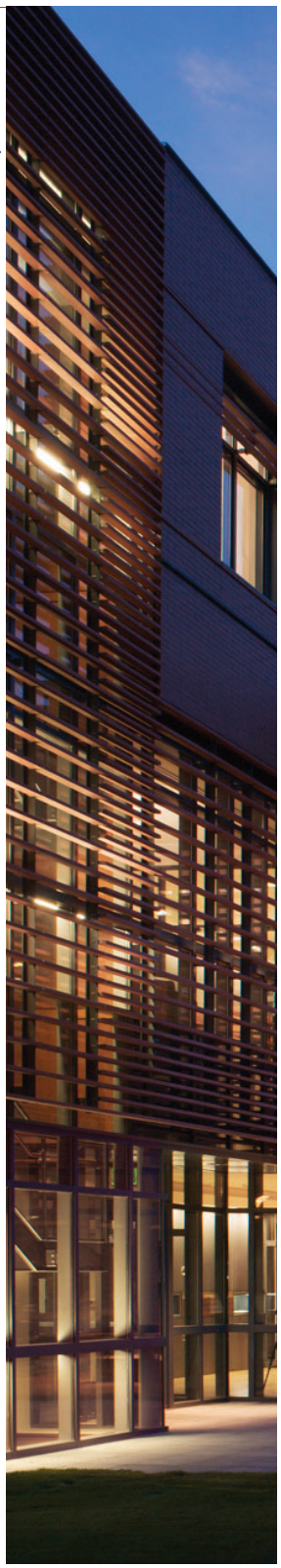
Commissioning Services



For 28 years, BVH Integrated Services has been providing commissioning services on various projects, including municipal facilities, public and private education, research laboratories, bio-tech facilities, central plants, correctional facilities, courthouses, destination resorts, energy plants, higher education, high-rise complexes, hospitals/healthcare, office complexes, and pharmaceutical facilities.

BVH has commissioned hundreds of projects, a total of several million square feet of construction. The approximate constructed dollar value of all of BVH's commissioning projects is over $5 billion. A vast majority of the current projects in our commissioning portfolio are designed to achieve LEED Certification by the US Green Building Council.

With the tremendous increase in system complexity and accelerated schedules, standard design and construction are no longer enough to ensure that a finished building will function optimally. Commissioning solves problems before they get in the way of a successful project.

Commissioning Team

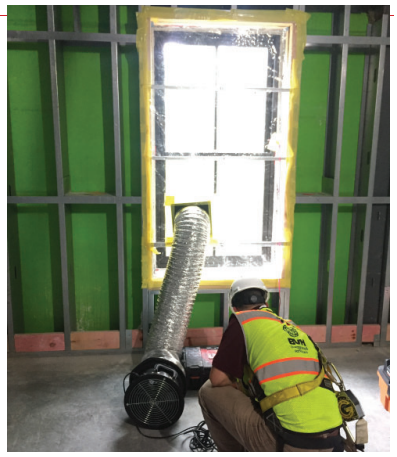
BVH has 14 full-time Commissioning Providers and Building Envelope Specialists on staff. Our staff is both qualified and experienced in testing and troubleshooting building systems. In choosing a Commissioning Agent, certifications are a measure of technical competency, education, and experience. Members of BVH's commissioning team hold many of the certifications in the industry, including:

- Licensed Professional Engineers
- Certified Commissioning Providers (CCP) - Building Commissioning Association
- Air and Water Balancing Specialists
- LEED Accredited Professionals
- OSHA 10-hour Construction Safety
- OSHA Confined Space Training
- Certified Energy Managers
- Infrared/Thermography Certification - Level 1
- Niagara AX Certification
- Building Performance Institute (BPI) Building Analyst & Envelope Specialist

Commissioning Capabilities

- Functional Testing of Building Systems
- LEED Certification Testing
- Enhanced Cx
- Retro-Commissioning
- Facility Optimization Services
- Existing Building Commissioning
- Owner Training
- O&M Documentation
- Maintenance Training Manuals
- Air & Water Balancing
- Engineering Peer Review
- Building Envelope Services
- Enhanced CA Services
- Continuous Commissioning Services

Building Envelope Services



BVH's building envelope expertise is part of our integrated services and gives clients single source access from pre-design through post-occupancy. Our cross-disciplinary expertise delivers finely tuned buildings that meet exacting energy, material, and climate demands.

BVH has 3-full-time Building Envelope Specialists on staff, led by Mr. Jon Haehnel, Director of Building Envelope Services (resume enclosed). Our Building Envelope Specialists are both qualified and experienced in a variety of Building Envelope commissioning, diagnostic, and testing services.

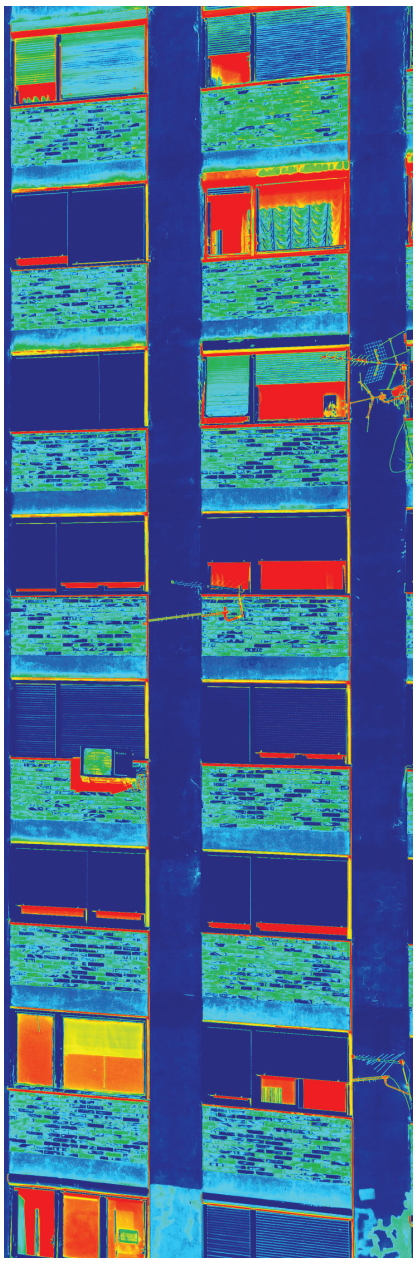
Building Envelope Capabilities

- Building Envelope Commissioning
- Building Envelope Diagnostics
- Building Envelope Plan & Specification Review
- Building Envelope Consulting
- Large Scale Blower Door Testing
- Pressure Balanced Blower Door Testing
- Infrared Imaging
- Pressurized Fog Testing
- Window Airtightness Testing
- Window Water Penetration Testing
- Membrane Adhesion Testing
- Mock-up Testing and inspections

Infrared Testing at BVH

Whether building a new facility or retrofitting an existing facility, the overall goal of BVH's Commissioning Team is to provide our clients with a fully operating building that functions according to design intent.

In many situations, however, a building's mechanical systems aren't balanced or zoned correctly, or the building envelope isn't tight, resulting in various problems such as unsuitable indoor temperatures, excessive heat loss or moisture problems.



The Benefits of Infrared Testing are Many

Infrared gives us a quick picture of a building's mechanical systems and how they are functioning. For example, infrared detection helps us easily determine if the heating/cooling zones in radiant slab systems are functioning properly, or whether the water balancing in a facility's chilled beams is correct. As a result, our commissioning team is more efficient with functional testing.

- With the assistance of infrared thermal imaging, we can detect problems in the building envelope, such as poorly installed air and thermal barriers.

- Infrared detection technology rapidly and accurately identifies hidden problems that waste energy dollars and threaten the integrity of a building. Radiant heating systems in floors, for example, become hidden once concrete is poured, and the continuous hot water supply and return piping is not visible to the eye. With infrared technology, a lack of water to various zones, crushed or damaged piping, improper water balancing, or incorrect temperature control of radiant slab or snow melt systems can all be identified quickly.

- We can locate and address piping and wiring issues that subsequently reduce energy costs, minimize structural damage, and enhance occupant comfort.

BVH's Commissioning Team has been keeping buildings functioning optimally for 28 years. Our service capabilities have been enhanced with the use of infrared testing — a proven, nondestructive and efficient method for troubleshooting MEP systems and building envelopes

Using infrared detection technology, BVH has developed proven methodologies to detect problems with critical building components, including building envelopes, radiant slab, radiant slab heating/cooling, radiant heating panels, chilled beams, and snow melt systems.

BVH integrated services

UNDERSTANDING & APPROACH

Understanding & Approach

BVH integrated services

BVH's objectives for typical "full" building commissioning projects seeking to meet Connecticut High Performance Building Guidelines or LEED v4 compliance:

- Provide support to the project team during design and construction to meet the Owner's functional, energy management and budgetary needs.
- Make every effort possible to insure that the installed equipment and systems are operating according to the design intent prior to occupancy.
- Ensure that the Owner's operating personnel are fully trained in the maintenance and operation of all building systems.
- Perform all tasks required by LEED for both Prerequisite Commissioning and the Enhanced Commissioning Credits.

University of Notre Dame - O'Neill Hall of Music
Notre Dame, Indiana

DESIGN PHASE

BVH will perform a review of the Basis of Design and contract documents to fully understand the design intent and major mechanical, electrical, plumbing and building envelope systems. This review enables us to fully understand the phasing of any project and to efficiently assemble and execute our functional testing protocols. This will result in a seamless integration of the commissioning process into the construction schedule.

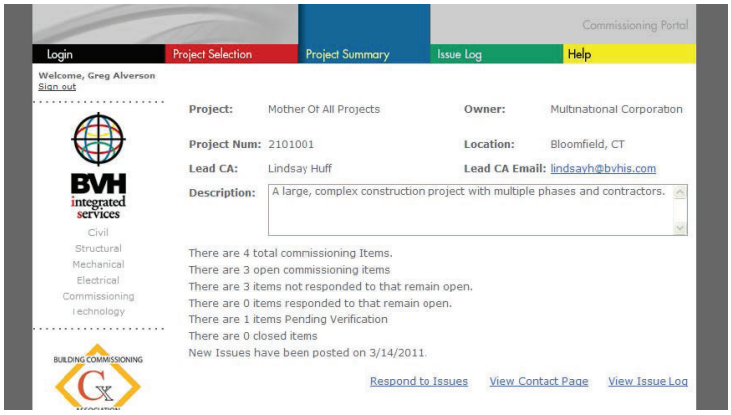
A quality control review of the various stages of the contract documents will be performed. This review is not intended to relieve the Engineer of Record from their design and quality control responsibilities, but rather is to have another "set of eyes" assist in delivering a high quality project to the City of Bristol. Our BVH PEER review team, along with Mr. Lindsay Huff and Mr. Daniel Morin, will be the primary individuals involved with this deliverable. BVH provides a team of engineering professionals to cover all aspects of a building design including the MEP, structural, utility infrastructure / civil, Technology and building envelope.

Document Reviews

Our typical scope for quality control will be performed by our in-house peer review teams and include, as a minimum, the following:

- Review of the basic design approach including efficiency of equipment selections.
- Review expected occupant activity, density and locations where special attention is needed.
- Review of mechanical and electrical schematic one lines along with the MEP floor plans
- Review system design to maintain acceptable CO2 levels. Verify adequate ventilation rates are maintained.
- Review of value engineering opportunities.
- Review air intakes and exhausts for short-circuiting and exterior pollution sources relative to outdoor air intakes.
- Review of major equipment selections.
- Review filtration methods.
- Review accessibility to all equipment.

- Review of zoning approach and the building envelope.
- Review of mechanical and electrical space requirements.
- Review of general MEP coordination.
- Review of the Owner objectives for Indoor Air Quality and verify implementation into project.
- Review of any Owner standards and verify implementation into project
- Full review of the control system strategies
- Verify training and Operations and Maintenance requirements are properly specified
- Verify building systems commissioning requirements have been properly specified
- Review of project specifications including any and all commissioning requirements.
- Review the Owner's Project Requirements and the Basis of Design to verify requirements are properly specified in the contract documents.
- Review of specific building technology requirements and infrastructure.
- Review of building envelope systems which will include the roofing, waterproofing and exterior windows / wall assemblies. Review will include select enclosure systems, such as air barrier, diffusive vapor control system, water management systems and the thermal barrier for reliability, durability, suitability, constructability and continuity.



BVH'S commissioning portal helps the project team track and correct project issues

Commissioning Specification

As a part of the project team, BVH will produce the specifications for the commissioning requirements defining the necessary scope and participation of the various subcontractors. BVH has written hundreds of commissioning specifications and coordinated their inclusion into various projects with the respective Architects and Engineers of Record.

Commissioning Plan

BVH will produce the commissioning plan, an informational document that clarifies how the commissioning process shall proceed, and outlines the responsibilities of the Commissioning Provider, Owner, as well as what services will be required of the Design Team, Construction Manager, and subcontractors. This document also describes the processes that will be used to carry out commissioning. It is a continual working document and will be updated throughout the project, progressing from design phase to the construction phase commissioning plan. This document forms the basis of the commissioning kick-off meetings to coordinate contractor support.

CONSTRUCTION PHASE

Commissioning Process Development

BVH will review approved submittals and shop drawings for all systems being commissioned. The purpose of these reviews will be to verify that the shop drawing complies with the OPR and BOD, operation and maintenance requirements, and facilitates performance testing. BVH will also conduct a sequence of

operations review with all parties prior to the controls contractor's formal submittal. We have found in the past that a preliminary review with the engineer, owner, facility personnel, contractors and commissioning provider prior to the formal ATC submission is beneficial to all.

Commissioning Process

As the Commissioning Provider, BVH will supervise and oversee the commissioning process. BVH will develop a commissioning plan that summarizes the commissioning process, roles and responsibilities and contractor expectations during the project. The commissioning plan will be used to bring the contractors up to speed with the BVH process. A kickoff meeting will be held with all pertinent members of the construction team during the early construction stages. This allows BVH to integrate our commissioning activities into the construction process.

BVH'S commissioning team self-performs all functional testing of equipment and systems

During this initial kickoff with the contractors, we identify their specific involvement with the commissioning. This meeting will also include the Owner, design team and Construction Manager. BVH will develop and utilize functional test procedures that will verify and document the performance of those systems being commissioned. On-site construction reviews will begin at the start of construction and carry through as equipment and ductwork installation progresses. On-site construction reviews are anticipated to take place monthly for the duration of any construction period, once mechanical equipment starts to be installed. The review frequency will increase as we prepare for the functional testing to begin.

Functional Testing

Functional testing of equipment and systems is performed by BVH personnel with the assistance from the installing contractors. BVH's commissioning team conducts all tests and documents our review of the equipment / system performance. As we test systems and equipment, we will post regular commissioning updates to the BVH Commissioning Portal for the project, indicating the specific systems involved and any equipment failures or deficiencies found.

The BVH Commissioning Portal is an on-line tracking database used to track issues and assign responsibility for corrective action. All members of the Design/Construction/Commissioning Team will be given access to the Commissioning Portal as required to respond to issues or deficiencies. Open issues will be identified by the individual trades. Once the subcontractor has made any necessary corrections they will update their specific issues online for re-verification by the commissioning provider. If assistance is needed from the Design Team, a formal request will be sent asking for such recommendations and / or comments from the Design Team.

The commissioning portal is provided by and managed by BVH personnel and is offered to Owner / CM if construction management software is not being used for the project. (BIM 360 or Procore)

Determining Appropriate Levels of Commissioning Effort for Various Systems and Equipment

BVH holds a regular commissioning meeting as needed to discuss any open items and to plan the next two weeks of activities. The functional testing can begin as soon as a system is complete, depending on the

building construction progress. BVH recommends that the Owner's facilities operations and maintenance personnel review the equipment installations and observe the functional testing when- ever possible. This helps to familiarize the staff with locations, modes of operation and maintenance requirements before the formal training takes place.

BVH's Unique Approach to Functional Testing

What differentiates BVH from a majority of commissioning providers is our hands-on approach to testing of systems and equipment during the functional testing phase. We do not ask contractors to test their own equipment / systems and submit paperwork on those tests for our review. Conversely, BVH personnel work with the contractors to conduct all systems and equipment tests and document our review of their performance. We are hands on field technicians with years of building systems and building controls experience. Our innovative approach to any system deficiency is to identify and immediately correct the problem while on site and proceed to re-verify its operation.

We also utilize high-tech testing equipment, including our infrared camera, which we use as a trouble-shooting device.

BVH's 28 years of commissioning experience has proven that our proactive approach is well received among the various designers and mechanical and electrical contractors. They understand that our goal is to have the building operate as intended. Our typical sequence of functional testing progresses from the central systems out to the terminal equipment. We will work with the construction manager and installing contractors to identify systems and equipment that will be ready for startup and functional testing for a more efficient process.

As we begin the testing of the main air handlers, we typically pick one air handler and completely finish the functional testing. We use this commissioned air handler as a model for the remaining air handlers. We then allow the ATC and Mechanical contractors to proceed to check all other air handlers in the same manner prior to resuming our commissioning. This gives the Contractors and Design Team a comfort level for our testing procedures and helps to streamline the remaining air handlers, thus staying ahead of the completion date.

BVH uses high-tech testing equipment, such as infrared detection technology, enabling us to detect problems with critical building components, including radiant slab, radiant slab heating/cooling.
Concurrent with the HVAC functional testing, we anticipate system testing for the plumbing, electrical and life safety equipment. This can be accomplished through coordination with both the contractors and the commissioning team. As with most projects, off season testing of equipment and systems will need to be performed. Our experience has shown that most system failures occur in the swing sea- sons. Equipment and system deficiencies typically identify themselves when switching from cool night modes to warm day modes. It is our intent to witness all the necessary systems and controls through these periods.

Building Envelope Systems

Our approach to covering this service includes some of the typical services shown below and performed with in-house staff:

- PEER Review of various stages of the contract documents to meet LEED guidelines
- Assistance with commissioning specifications pertaining to envelope systems

- Development with commissioning plan
- Review of select shop drawings
- Attendance at commissioning meetings
- Review of exterior envelope mock-ups with follow-up reports
- Review of exterior envelope assemblies at various stages during construction.
- Our envelope services include various diagnostic testing services which include large scale blower door testing, pressurized fog testing, window airtightness testing, window water penetration testing and membrane adhesion testing.

BUILDING TURNOVER / WARRANTY PHASE

O&M Training

Along with a functioning building, any successful project requires a trained operating staff that is knowledgeable in the operation of those building systems. Classroom and onsite training with the facility staff and their participation in the functional testing of equipment are key to a successful transition from building construction to building operations. During the Building Turnover/ Warranty Phase, BVH will help gather and review all pertinent information regarding the project close- out materials together with the project team. This includes record drawings, O&M manuals and our own system training manual for the anticipated classroom training sessions. Discussions with facility staff about the systems manual will be held at the project site and will be given as many times as the facility deems necessary to accommodate things like multiple shifts with Facility Staff. Off-season testing and the warranty period services will be accomplished at the site with the installing contractors and facility staff.

If the project seeks LEED v4 certification and EAc3 - Option 1 – Path 2 credit is selected, then BVH will assist the design team with specifying the necessary metering and control points necessary to perform the "Monitoring Based" commissioning. Additionally, we will provide analysis in the first year of occupancy based on the collected data from the monitoring points (Quarterly collection and review) to satisfy EAc3 – Option 1- Path 2.

A safe and healthy facility, improved energy performance and improved system documentation are all key goals with any new and renovated project.

BVH integrated services

WORK PROGRAM & SCHEDULE

Work Program & Schedule

Scope of services is based on equipment and systems serving approximately 27,560 SF (Theater plus the First Level.) as identified in QA+M Building Program Draft and associated CES attachment to the draft dated December 1, 2017

Schematic Design Phase:

1. Attend one project meetings with the intent to become familiar with the design / project intent.
2. Review with design team Connecticut High Performance Building Standard Guidelines Compliance Manual (and/or LEED v4 Silver compliancy) project targets, commissioning requirements and how it relates to this project.
3. Assist Owner in the development and writing of the Owner Project Requirements (OPR) document.

Design Development Phase:

1. Write a design phase commissioning plan, and include Operation and Maintenance (O&M) and training requirements as requested by the Owner for incorporation into the project specifications.
2. Review the Basis of Design (BoD) document to ensure conformance to the OPR.
3. Perform PEER review of the MEP systems at the Design Development phase. Provide comments to the Design Team and Owner for review and response. As a minimum, the review topics shall include the following:

    a) M/E/P Review:
    - Review of critical engineering calculations.
    - Review of mechanical and electrical schematic one lines (including Technology)
    - Review accessibility to all equipment.
    - Review of mechanical and electrical space requirements.
    - Review of any Owner standards and verify implementation into project.
    - Full review of the control system strategies.
    - Verify training and operations and maintenance requirements are properly specified.
    - Verify building systems commissioning requirements have been properly specified.
    - Review of project specifications including any and all commissioning requirements.
    - Review the Owner's Project Requirements and the Basis of Design to verify requirements are properly specified in the Contract Documents.

4. Attend and participate in a selected design review meetings.
5. Develop full commissioning specifications for all commissioned equipment. Coordinate with and integrate into the specifications of the Architect and Engineers. The commissioning specification will include a detailed description of the responsibilities of all parties; details of the commissioning process; reporting and documentation requirements, including formats; alerts to coordination issues; deficiency resolution; construction checklist and startup requirements; functional testing process; specific functional test requirements, including testing conditions and acceptance criteria for each piece of equipment being commissioned.

Construction & Acceptance Phase:

A. M/E/P Commissioning

Sample Cx Plan

1. Coordinate and direct the commissioning activities in a logical, sequential and efficient manner using consistent protocols and forms, centralized documentation, clear and regular communications and consultations with all necessary parties, frequently updated timelines and schedules and technical expertise.
2. Plan and conduct a commissioning scope meetings with all involved parties followed up with meeting minutes. We typically conduct these meetings directly after the subcontractor meetings to avoid multiple meetings during the course of construction.
3. Request and review additional information required to perform commissioning tasks, including an equipment checkout plan, contractor start-up and checkout procedures.
4. Review and comment on normal MEP Contractor submittals applicable to systems being commissioned for compliance with commissioning needs, concurrent with the A/E reviews.
5. Plan and conduct a pre-balancing meeting between Commissioning Agent, Owner, Engineer, Construction Administrators, contractor, controls contractor and TAB subcontractor to review readiness of the duct and functionality of the controls. Techniques and reporting format will be reviewed and issues resolved.
6. Before start-up, gather and review the current control sequences and interlocks and work with the contractors and design engineers until sufficient clarity has been obtained, in writing, to be able to write detailed testing procedures.
7. Attend selected planning and jobsite meetings to obtain information on the construction progress.
8. Develop and distribute pre-functional equipment checklists and enhance start-up and initial systems checkout plan with subcontractors for commissioned equipment.
9. Perform site visits (2 total), once equipment and systems are available to observe component and system installations and startup. Provide observation reports of system installations and startup.
10. Document construction checklist completion by reviewing completed construction checklists and by selected site observation.
11. Document systems startup by reviewing startup reports and by selected site observation.
12. Witness HVAC piping pressure test and flushing, sufficient to be confident that proper procedures were followed. (One (1) Site Visit)
13. Witness ductwork testing and cleaning sufficient to be confident that proper procedures were followed. (One (1) site visit)
14. Review testing, adjusting and balancing (TAB) execution plan prior to the start of air and water balancing.
15. Write the detailed functional performance tests procedures for the equipment and systems. This will include manual functional testing, energy management control system trending and may include stand-alone data-logger monitoring. Submit to CM for review and approval if required.
16. Oversee and approve the training of the Owner's operating personnel. BVH will use our spreadsheet to help develop Owner Training schedules with all participants. Training of facility personnel will be conducted by the installing contractors and documented by the commissioning agent and verified to meet contract documentation. BVH intends to use a professional videographer to

record training sessions relating to commissioned systems.

17. Verify air and water systems balancing by reviewing completed reports and by selected site observation. BVH has certified NEEB Air and Water Balancing personnel who will be on site to verify the set-up of the various spaces before the balancing contractor proceeds. We typically like to conduct a mock-up of a critical area and commission before both air and water and temperature controls contractor proceed with the entire project.
18. Perform the functional testing of equipment using the functional performance record sheets. Coordinate, witness, and document manual functional performance tests performed by installing contractors. Commissioning Agent shall include facility personnel in the functional testing process.. The functional testing shall include operating the system and components through each of the written sequences of operation, and other significant modes and sequences, including startup, shutdown, unoccupied mode, manual mode, staging, miscellaneous alarms, power failure, security alarm when impacted and interlocks with other systems or equipment. Sensors and actuators shall be calibrated during pre-functional check out by the installing contractors, and spot-checked by the Commissioning Authority during functional testing. Tests on respective HVAC equipment shall be executed, if possible, during both the heating and cooling season. However, some overwriting of control values to simulate conditions shall be allowed. Functional testing shall be done using conventional manual methods, control system trend logs, and read-outs or stand-alone data loggers, to provide a high level of confidence in proper system function, as deemed appropriate by the commissioning Authority and the Owner. Review of testing will also include any required witnessing of flushing, cleaning, or chemical treatment of the hydronic systems.
19. Maintain a master deficiency and resolution log (BVH Web Based Portal) and a separate testing record. Report all issues as they occur directly to the CM. Provide directly to the CM written progress reports and test results with recommended actions.
20. Track all deficiencies and retest when corrections have been made shall occur while testing remaining systems.
21. Review and approve the preparation of the O&M manuals for the commissioned equipment.

B. Technology Commissioning - "Suggested" Scope of Services

As the RFP does not clearly define the scope of requirements for Technology Commissioning. we offer the following suggested scope of services we have used with success on similar projects of this type and size

1. Data & Communications
   a) Review of O&M manual.
   b) Review base building telecommunications contractors test results for all permanent links.
   c) Provide Field Verification and Findings Report(s), photographs, and installation evaluation for:
      i. Structured cabling system (optical fiber and copper systems) Pathways and spaces, grounding and labeling.
   d) Witness Sample testing of structured cabling (15% of total horizontal cables terminated).
      i. Test to ANSI/TIA-568-C.2 requirements. Link or Channel testing as Specified.
   e) Witness Testing of the Optical Fiber
      i. Test to all TIA specifications both wavelengths.
         Single mode – ANSI/TIA 568 C.3 for single mode fiber.
         Multimode – ANSI/TIA 568 C.3 for multimode fiber.

f) Comparison of sample testing to contractor test results.
g) Verification of grounding, resistance at all ground bars.

2. Public Address
   a) Verify that audio signal is being distributed accurately (ex. Zoning etc.).
   b) Verify that phone integration has been completed and confirm interoperability.

3. Security Systems
   a) Verify access control credentials are capable of unlocking doors.
   b) Verify that all alarms and notifications as defined as part of the project are notifying the user as defined in the project documentation.
   c) Verify that all access control software has been setup and configured. Configuration to include but not limited to: Building GUI maps setup in access control database, all inputs and outputs on access control boards are logically named in software.
   d) Verify that all video surveillance software has been setup configured. Verification for all cameras to be recording to the network video recorder with settings as defined in project documentation. All cameras can be accessible by the network video recorder. All cameras are logically named. All camera views are setup as defined in the project documentation. All camera settings have been adjusted for the specific environment that they have been installed in per the project documentation (i.e. focal length, day/night, PTZ settings, etc.).

4. Wireless Network
   a) Verify SSID and security parameters as specified.
   b) Confirm wireless coverage throughout the entire facility using EKAHAU Site Survey software.
   c) Record signal strengths throughout facility EKAHAU Site Survey software.

Occupancy/Post Occupancy Operational Warranty Phases

1. Compile a Commissioning Record or Final Report which shall include:
   a) A brief summary report that includes a list of participants and roles, brief building description, and an overview of commissioning and testing scope.
   b) All outstanding non-compliance items shall be specifically listed. Recommendations for improvement to equipment or operations, future actions, commissioning process changes, etc. shall also be listed.
   c) Also included in the Commissioning Record shall be the issues log, commissioning plan, progress reports, submittal and O&M manual reviews, training record, construction checklists, start-up reports and functional tests.
   d) Copy of the Final Balancing report provided by the TAB contractor.
2. Develop a "System Manual" that shall be used by the Facility personnel for training purposes. Manual shall be used as a record of all HVAC equipment sequencing and setpoints. Manual shall include the Owner's Project Requirements, Basis of Design, Performance Metrics, space and use descriptions, single line diagrams, ATC sequences and all pertinent system information.
3. Supervise any seasonal or deferred testing and deficiency corrections required by the installed systems

and / or deemed from the functional testing of equipment.

4. Implement a warranty reviews of commissioned systems and equipment at 6 months and 11 months into the 12-month warranty period.

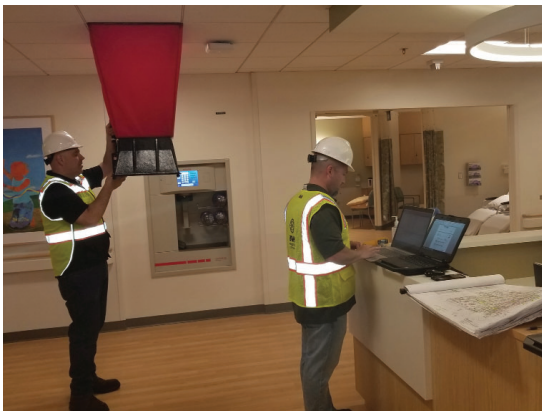
Exclusions

- Changes to previously approved scope.
- Any design work associated with corrections to the systems and equipment.
- Any contractor time associated with the commissioning effort.
- Additional return visits to the project site above and beyond that which is stated in the proposal to test equipment which was found incomplete.
- Any work associated with LEED Online Documentation Uploading

Functional Testing of Equipment and Systems

The purpose of this commissioning effort will be to verify and document the operation of the following anticipated systems:

- Air Handling Systems: Includes any and all of the following equipment:
  - Rooftop DX Air Handling Unit (1)
  - DOAS Unit (1)
- Supply Air Distribution Systems: All installed split systems and associated VRV system control boxes /condensing units will be tested to provide a thorough evaluation of their operation; all variables will be covered by exposure, occupancy, and critical and sound sensitive areas.
- Exhaust Fans: All of the general and specialty exhaust fans will be verified for proper operation and their interaction with total building air balance. (Assume 4 exhaust fans.)
- All Direct Digital Controls (DDC) shall be verified for proper operation as they relate to the above equipment including interfaces for remote monitoring. All security and system interlocks associated with the control system shall be commissioned.
- Spot checking of air and water balancing readings including space pressurization.
- Building domestic hot water heating systems including the recirculation line.
- Lighting controls and occupancy sensors.
- Fire Alarm.
- Areas of Refuge.



BVH staff members performing testing.

BVH integrated services

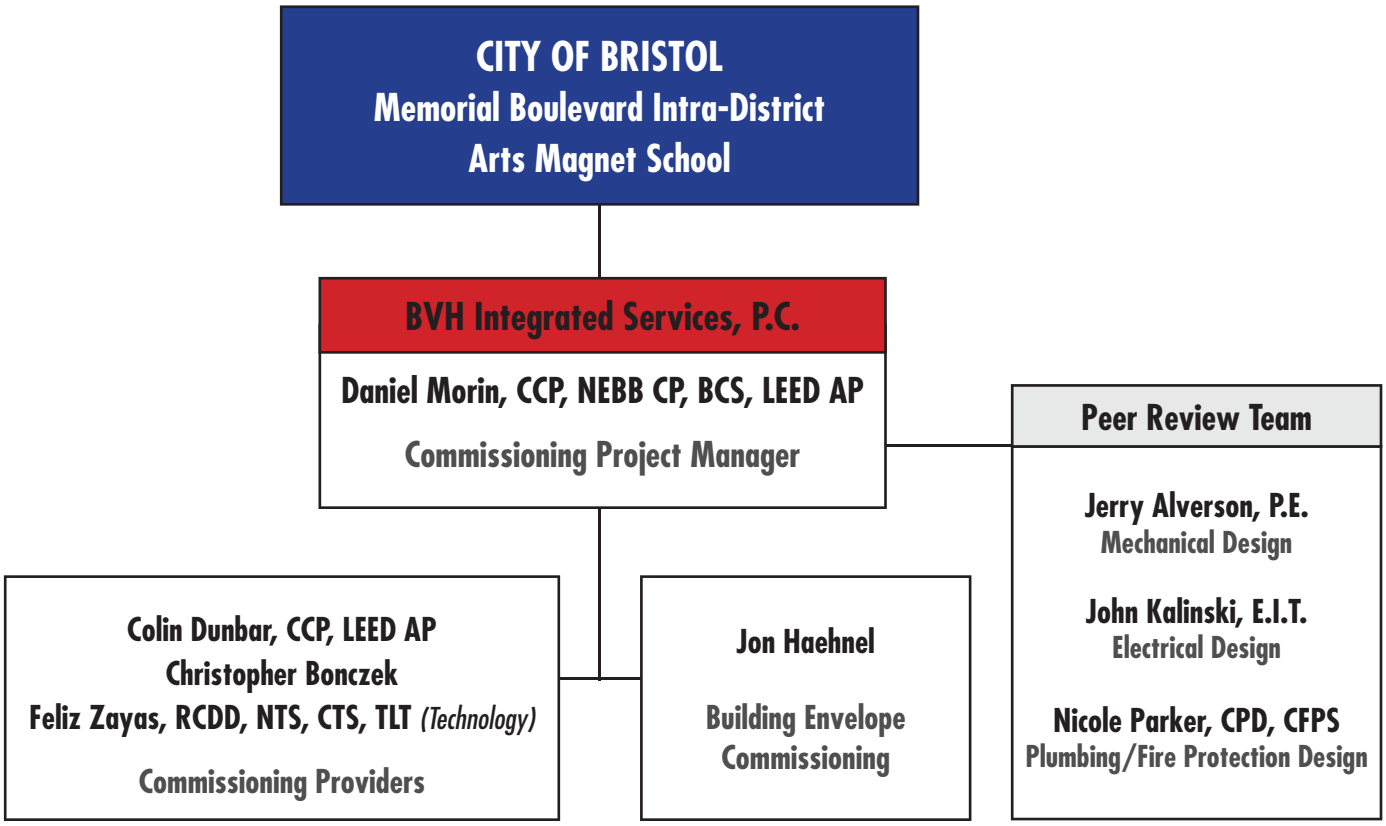
ORGANIZATIONAL CHART &

KEY STAFF RESUMES

Organizational Chart

The individuals we are proposing have many years of relevant experience on similar commissioning projects and our team is committed to the successful completion of this project.

Resumes of BVH's key personnel follow this page.



Dan Morin, CCP, NEBB CP, BSC, LEED AP

COMMISSIONING PROJECT MANAGER

Daniel Morin has 33 years of experience in the commissioning and air and water balancing fields. As a part of the commissioning team, he will review design criteria and construction documents to understand the design intent, visit the site and observe and comment on the MEP installations, interact with all Trade Contractors, assist in the functional testing procedures, assist in the seasonal and warranty review periods, and publish system field reports as commissioning is completed on the individual systems.

YEARS EXPERIENCE

Total: 33

BVH: 10

EDUCATION + CERTIFICATIONS

Certified Commissioning Professional (BCA)

NEBB Certified Building Systems Commissioner (BSC)

LEED Accredited Professional

Certified Level 1 Thermographer

OSHA 30-Hour Construction Safety

Testing and Balancing Certified Professional (NEBB CP)

SELECTED RELEVANT EXPERIENCE

Roberto Clemente Learning Academy
New Construction
New Haven, Connecticut

Charles H. Barrows
STEM Academy
Windham, Connecticut

DePaolo & Kennedy Middle Schools
Addition / Renovations
Southington, Connecticut

Southwick Tolland Granville
Regional Middle High School
Southwick, Massachusetts

Choate Rosemary Hall
Kohler Environmental Center
Wallingford, Connecticut

Kingswood Oxford School
Chase Tallwood Science Math Technology Center
West Hartford, Connecticut

Mary A. Dryden Veterans Memorial
Elementary School
Springfield, Massachusetts

ACES Educational Center for the Arts
The Little Theatre
New Haven, Connecticut

University of Notre Dame
Campus Crossroads, O'Neill Hall of Music
Notre Dame, Indiana

Amistad High School
New Construction
Northampton, Massachusetts

Naugatuck Valley Community College
Technology Building
Waterbury, Connecticut

Region 16 Elementary School
New Construction
Prospect, Connecticut

New Haven Academy
Renovations
New Haven, Connecticut

M.D. Fox School
Renovations
Hartford, Connecticut

Colin Dunbar, CCP, LEED AP

COMMISSIONING PROVIDER

Colin has been providing commissioning services at BVH since 2007. As a part of the commissioning team, he assists the commissioning team with design reviews and in writing commissioning plans. His responsibilities include writing preventative maintenance manuals, functional test sheets and pre-functional equipment checklists, systems training manuals, and commissioning specifications. He performs functional testing of mechanical, electrical, domestic water systems and lab systems.

YEARS EXPERIENCE

Total: 15

BVH: 12

CERTIFICATIONS

Certified Level 1 Thermographer

LEED Accredited Professional

Certified Commissioning Professional

OSHA 10-Hour Construction Safety

OSHA Confined Space Certification

EDUCATION

Eastern Connecticut State University,
B.S. Finance

MEMBERSHIPS

Building Commissioning Association

American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)

SELECTED RELEVANT EXPERIENCE

Eastern Connecticut State University
Fine Arts Center
Willimantic, Massachusetts

DePaolo & Kennedy Middle Schools
Addition / Renovations
Southington, Connecticut

Region 16 Elementary School
New Construction
Prospect, Connecticut

Jettie S. Tsidale
Elementary School
Bridgeport, Connecticut

University of Massachusetts Lowell
Pasteur Hall Renovations
Lowell, Massachusetts

Columbia University
Northwest Science Building
New York, New York

Great Path Academy
At Manchester Community College
Manchester, Connecticut

Choate Rosemary Hall
Kohler Environmental Center
Wallingford, Connecticut

Roberto Clemente Learning Academy
New Construction
New Haven, Connecticut

University of Connecticut
Innovation Partnership Building
Storrs, Connecticut

University of Connecticut
New Engineering & Science Building
Storrs, Connecticut

University of Notre Dame
Stinson Remick Hall
South Bend, Indiana

Christopher Bonczek

COMMISSIONING PROVIDER

YEARS EXPERIENCE

Total: 11

BVH: 2

LICENSES

TABB Technician

TABB Supervisor

Fire Life Safety Technician, Level 1

Sheet Metal Journey Person: Connecticut

CERTIFICATIONS

OSHA 30 hr

Fume Hood Performance Testing Technician

EDUCATION + TRAINING

US Navy 1994-2005

CAD-1

Chris has over 10 year of professional experience. Previously employed with Wing's Testing & Balancing Co. Inc., Chris has experience as a TABB Supervisor and Technician, and as a Fire Life Safety Level 1 Technician. He has also taken Instructor training 101 and served as the TABB Instructor and a Fire Life Safety Level 1 Instructor for SMW Local 40.

Chris' responsibilities include reviewing construction documents, performing functional testing, overseeing MEP installations, developing commissioning schedules, and producing system field reports as throughout the commissioning process.

SELECTED RELEVANT EXPERIENCE

Town of Bethel
Frank Berry School
Bethel, Connecticut

Town of Bethel
Municipal Center
Bethel, Connecticut

Hartford Hospital
Annual Compliance Testing
Hartford, Connecticut

Connecticut Children's Hospital
Annual Compliance Testing
Hartford, Connecticut

Connecticut Children's Hospital
Annual Compliance Testing
Farmington, Connecticut

Stamford Hospital
Annual Compliance Testing
Stamford, Connecticut

Town of Bethel
DPW Garage
Bethel, Connecticut

Lenox Hill Hospital
Annual Compliance Testing
New York, New York

University of Connecticut
Health Center Building Renovation
Storrs, Connecticut

Town of Groton Police Department
Indoor Shooting Range
Groton, Connecticut

Hoffman's Gun Center
Indoor Shooting Range
Newington, Connecticut

Town of Trumbull Police Department
Building Renovation
Trumbull, Connecticut

Felix Zayas, RCDD, NTS, CTS, TLT

TECHNOLOGY PROJECT MANAGER

Felix has more than 10 years experience providing technology engineering services, including voice/data systems, structured cabling, fiber, AV systems, paging systems, security systems, CATV Systems, and wireless systems.

Felix has extensive knowledge of current technology standards and practices and has worked on project types ranging from educational facilities including schools, colleges, and universities to laboratory/research buildings and healthcare facilities.

YEARS EXPERIENCE

Total: 15

BVH: 10

REGISTRATIONS

Registered Communications Distribution Designer

Telecommunications Infrastructure Layout Technician, State of CT

MEMBERSHIPS

BICSI

SELECTED RELEVANT EXPERIENCE

Mary Hooker Magnet School
Renovations & Additions
Hartford, Connecticut

Davis Street Magnet School
New Building
New Haven, Connecticut

Richard J. Kinsella Magnet School of the Arts
Renovations
Hartford, Connecticut

Nathan Hale Elementary School
Renovations & Expansion
New London, Connecticut

Winthorp Elementary School
Renovations & Expansion
New London, Connecticut

Great Neck Elementary School
New Building
Waterford, Connecticut

Bridgeport Discovery Magnet School
New Building
Bridgeport, Connecticut

The Morgan School
New Building
Clinton, Connecticut

Griswold Middle School
Renovations & Additions
Griswold, Connecticut

Gateway Community College
New Facility
New Haven, Connecticut

ACES Little Theater
Renovations & Additions
New Haven, Connecticut

Qunsigamond Community College
Science & Technology Modernization
Worcester, Massachusetts

Jon Haehnel

BUILDING ENVELOPE COMMISSIONING PROVIDER

Jon has been testing and inspecting a variety of building types for 16 years. Jon's expertise is in building envelope testing and design focusing primarily on institutional and commercial construction. He has built energy models, reviewed construction documents, specified air tightness targets, trained project teams on how to reach the targets, and tested through to completion to verify targets were met for new construction and renovation projects. His experience includes frequently working with owners, architects, contractors, and engineers to coordinate large or complicated tests.

Jon is coauthor of "Setting Airtightness Standards" (ASHRAE Journal, Sept. 2005) and has presented on building envelope commissioning at the Better Buildings by Design Conference numerous times.

YEARS EXPERIENCE

Total: 16

BVH: <1

CERTIFICATIONS

BPI Certified Building Analyst &
Envelope Specialist

Certified Level 1 Thermographer

EDUCATION

Utah State University

B.S., Biology

SELECTED RELEVANT EXPERIENCE

University of Connecticut
NextGen Residence Hall
Storrs, Connecticut

Williams College
Dormitory
Williamstown, Massachusetts

Williams College
Bookstore
Williamstown, Massachusetts

Keene State College
Pondside IV Dorm
Keene, New Hampshire

Keene State College
Alumni Center
Keene, New Hampshire

Champlain College
Juniper Hall
Burlington, Vermont

Smith College
Neilson Library
Northampton, Massachusetts

Mount Wachusett Community College
STEM Building
Gardner, Massachusetts

Naugatuck Valley Community College
Founders Hall
Waterbury, Connecticut

Dartmouth College
Kappa Delta Sorority house
Hanover, New Hampshire

Plymouth State University
Merrill Place
Plymouth, New Hampshire

St. Michaels College
Residence Hall IV
Colchester, Vermont

Jerry B. Alverson, P.E.

PEER REVIEW, MECHANICAL DESIGN

Jerry Alverson joined BVH as a Project Manager in 1993. He has more than 35 years of experience in the design, construction, operations and maintenance of building mechanical, electrical and technology systems for a variety of owners, contractors and consultants.

Jerry has provided engineering design, management, and peer review on a number of new construction and renovation projects, including correctional facilities, hospitals, government and industrial facilities, schools, libraries, office buildings, and laboratories. His experience also includes serving as HVAC Supervisor/Assistant Plant Engineer at Yale-New Haven Hospital, where he became very familiar with operations and maintenance in a healthcare setting.

YEARS EXPERIENCE

Total: 39

BVH: 23

PE LICENSES

Connecticut

California

Massachusetts

Rhode Island

EDUCATION

Cornell University, Bachelor of Science in Mechanical Engineering

Rensselaer Polytechnic Institute, Master of Business Administration

MEMBERSHIPS

ASHRAE

New England Healthcare Engineers' Society

SELECTED RELEVANT EXPERIENCE

University of Connecticut
Framework Project
Storrs, Connecticut

Three Rivers Community College
Advanced Manufacturing Building
Norwich, Connecticut

Naugatuck Valley Community College
Physical Plant
Naugatuck, Connecticut

Universal Health Services
Mental Health Center
Quincy, Massachusetts

Bristol-Myers Squibb
Cooling Tower Replacement
Wallingford, Connecticut

University of Connecticut Health Center
New Bed Tower
Farmington, Connecticut

Smith College
Ford Hall
Northampton, Massachusetts

U.S. Naval Forces
Education and Training Center
Newport, Rhode Island

Universal Health Services
Mental Health Center
Quincy, Massachusetts

Anna Jaques Hospital
Hospital Expansion
Newburyport, Massachusetts

Adirondack Health
Lake Placid Fitness Center
Lake Placid, New York

One Constitution Plaza
Infrastructure Upgrades
Hartford, Connecticut

John C. Kalinski, E.I.T.

SENIOR ELECTRICAL ENGINEER

As Senior Electrical Engineer, John is responsible for electrical design including lighting, power, and fire alarm systems which encompass the selection of the appropriate electrical products and associated technical specifications. He also reviews shop drawings during the submittal process and advises the Project Manager of their compatibility with the design intent.

John has 31 years of design experience at BVH ranging from office and industrial buildings to hospital facilities, including new and renovation work. His responsibilities have included system design, analysis, specifications and contract administration.

YEARS EXPERIENCE

Total: 31

BVH: 31

EIT LICENSE

Connecticut

EDUCATION

University of Hartford,
Bachelor of Science, Electrical Engineering

SELECTED RELEVANT EXPERIENCE

Capitol Region Education Council (CREC)
International School for Global Studies
South Windsor, Connecticut

Charter Oak
International Academy
West Hartford, Connecticut

Minuteman Vocational Technical
High School
Lexington, Massachusetts

Town of Avon
High School
Avon, Connecticut

Wintonbury Early Childhood
Magnet School
Bloomfield, Connecticut

Town of Griswold
Middle School
Griswold, Connecticut

City of Waterbury
Jonathan Reed Elementary School
Waterbury, Connecticut

Town of Griswold
Elementary School
Griswold, Connecticut

ESPN, Inc.
South Gate Welcome Building
Bristol, Connecticut

City of New Haven
Bishop Woods School
New Haven, Connecticut

ESPN, INC.
Building B
Bristol, Connecticut

Prudential Retirement Services
Building Renovations
Hartford, Connecticut

Nicole M. Parker, CPD, CFPS, LEED Green Assoc.

SENIOR PLUMBING / FIRE PROTECTION ENGINEER

Nicole Parker, Senior Plumbing/Fire Protection Engineer at BVH with over 20 years of engineering design experience, will be responsible for the project's plumbing/fire protection engineering design and contract administration.

Nicole's responsibilities in design include all plumbing piping systems and medical gas systems. Fire protection design including sprinkler head layout, suggested pipe routing for design-build by Fire Protection Contractor and Engineer of Record.

YEARS EXPERIENCE

Total: 21

BVH: 3

EDUCATION

Mount Holyoke College

Bachelor of Arts

Physics/Math/Engineering

CERTIFICATIONS

Certified Plumbing Designer

Certified Fire Protection Specialist

LEED Green Associate

ASSOCIATIONS

ASPE, CT CHAPTER

NFPA

SELECTED RELEVANT EXPERIENCE

Berkshire Hills Music Academy
Additions and Renovations
South Hadley, Massachusetts

Springfield Technical Community College
Building 32 Masterplan
Springfield, Massachusetts

Springfield Technical Community College
Building 20 Simulation Laboratory
Springfield, Massachusetts

Quinnipiac University
Temporary Research Facility
North Haven, Connecticut

Baystate Children's Hospital
Pediatrics Procedure Suite
Springfield, Massachusetts

Baystate Wing Memorial Hospital
Emergency Department Study
Palmer, Massachusetts

College of Holy Cross
Performing Arts Center Peer Review
Worcester, Massachusetts

University of Connecticut
Framework Project
Storrs, Connecticut

Berkshire Innovation Center
New State-of-the-Art Facility
Pittsfield, Massachusetts

Pratt & Whitney
World Headquarters
East Hartford, Connecticut

Norwalk Hospital
Hybrid Operating Room
Norwalk, Connecticut

Norwalk Hospital
Bed Tower
Norwalk, Connecticut

BVH integrated services

RELEVANT EXPERIENCE & REFERENCES

List of CTHPB Projects

All the projects listed below required commissioning services consistent with Connecticut High Performance Building Standards.

BVH integrated services

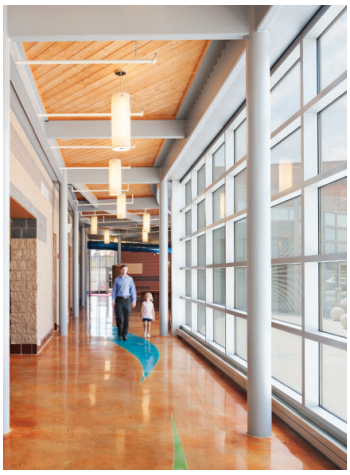
No.	Project Title/Location	Project Size (SF) /Cost	Town Point of Contact Name/Phone #	Cx Fees	Design Start/ Constr. Completion
1	Orville H. Platt High School Meriden, CT	247,000 $111 M	Michael Grove Asst. Superintendent 203-630-4173	$147,456 (Proposed) $143,032 (Actual)	4/2011 9/2017
2	Francis T. Maloney High School, Meriden, CT	256,550 $109 M	Michael Grove Asst. Superintendent 203-630-1473	$153,600 (Proposed) $148,992 (Actual)	4/2011 9/2017
3	Achievement First Amistad High School New Haven, CT	80,000 $35 M	Lisa Desfosses VP of Facilities 203-773-0390	$66,900 (Proposed) $66,900 (Actual)	1/2013 9/2015
4	Region 16 Prospect Elementary School Prospect, CT	86,000 $50 M	Philip Mazzatti Arcadis/ Project Manager 203-395-4381	$67,080 (Proposed) $67,060 (Actual)	NA 9/2015
5	Kennedy Middle School Southington, CT	136,000 $40 M	Peter Romano, Jr. Director of Operations 860-628-3200	$81,600 (Proposed) $81,600 (Actual)	9/2012 9/2015
6	DePaolo Middle School Southington, CT	136,000 $40 M	Peter Romano, Jr. Director of Operations 860-628-3200	$81,600 (Proposed) $81,600 (Actual)	9/2012 9/2015
7	Charles S. Barrows STEM Academy Windham, CT	83,700 $40 M	Norman Benjamin Project Manager, Arcadis 860-704-6100	$96,000 (Proposed) $96,000 (Actual)	1/2011 8/2013
8	Waddell School Manchseter, CT	66,000 N/A	Christopher Till, P.E. Facilities Manager 860-647-3145	$64,430 (Proposed) $64,430 (Actual)	4/2016 TBD
9	New Haven Academy New Haven, CT	67,000 $44 M	Webster Grouten Gilbane Building Co. 203-946-2812	$206,300 (Proposed) $206,300 (Actual)	6/2016 2019 (est.)
10	Strong School (SCSU) New Haven, CT	62,000 $45 M	Webster Grouten Gilbane Building Co. 203-946-2812	$177,900 (Proposed) $177,900 (Actual)	6/2016 2019 (est.)

K-12 Schools Experience Overview

BVH integrated services

- Hartford Public Schools - Hartford, CT
  - M.D. Fox School
  - Asian Studies at Bellizzi School
- Meriden Public Schools - Meriden, CT
  - Platt High School
  - Maloney High School
- Southington Public Schools - Southington, CT
  - DePaolo Middle School
  - Kennedy Middle School
- Manchester Public Schools - Manchester, CT
  - Cheney/Bennet Academy
  - Waddell Elementary School
  - Verplanck Elementary School
- Bridgeport Public Schools - Bridgeport, CT
  - Jettie S. Tisdale Elementary School
  - Cesar A. Batalla Elementary School
  - Barnum Elementary School
  - Waltersville Elementary School
  - Regional Vocational Aquaculture School
  - Longfellow School
- New Haven Public Schools - New Haven, CT
  - Barnard Magnet School
  - Clinton Avenue School
  - Hillhouse High School
  - Aquaculture/Sound School
  - East Rock School
  - Wilbur Cross High School
  - Roberto J. Clemente Learning Academy
  - Betsy Ross Arts Magnet School
  - Sound School
  - Harry A. Conte West Hills Magnet School
- Connecticut Regional Vocational Schools - Connecticut DPW
  - H.C. Wilcox Regional Technical School
  - A.I. Prince Technical High School
  - E.C. Goodwin Vocational Technical High School
  - Henry Abbott Regional Vocational Technical School
  - Howell Cheney Regional Vocational Technical High School
  - J.M. Wright Technical School
  - Eli Whitney Vocational Technical School

K-12 Experience Overview | page two



- Tolland Public Schools - Tolland, CT
  Tolland High School
  Birch Grove Primary School

- New Milford Public Schools
  New Milford High School
  Sarah Noble Middle School

- Massachusetts School Board Authority
  Estabrook Elementary School
  Mary A. Dryden School
  Greenfield High School
  Powder Mill School
  Woodland Elementary School
  Southwick-Tolland-Grandville Regional Middle / High School
  Dena Technical School
  Elias Brookings Elementary School
  J. Henry Higgins Middle School
  Sarah Gibbons Middle School
  Holyoke Public Schools
  Provincetown Public Schools
  Mount Greylock School
  James Peebles Elementary School
  Worcester Public Schools
  Doering Middle School

- Additional School Projects
  Great Path Academy Magnet School, Manchester, CT
  Achievement First Amistad School, New Haven, CT
  Region 16 Prospect Elementary School, Prospect, CT
  Metropolitan Learning Center Magnet School, Bloomfield, CT
  Deerfield Academy, Deerfield, MA
  Linden Street School, Plainville, CT
  Alcott Elementary School - Alcott, MA
  Choate Rosemary School - Wallingford, CT
  Horace Porter Elementary School - Columbia, CT
  Kingswood Oxford School - West Hartford, CT
  New Canaan High School - New Canaan, CT
  Regional Center for the Arts - Trumbull, CT
  Cooperative Educational Services - Trumbull, CT

Relevant Experience

ACES THE LITTLE THEATER - NEW HAVEN, CT

The project consists of a total renovation and addition to the 85-year-old Lincoln Theatre located in New Haven's Audubon Street arts district, expanding the 6,000-SF structure to over 10,000 SF and modernizing the entire building. The renovated building contains seven instructional spaces and will be equipped with new electrical, mechanical, plumbing and fire protection systems. BVH provided technology design to install the latest in high-tech audio/visual equipment, in addition to civil, structural, mechanical and electrical engineering design services as well as commissioning services.

Completion Date: 2014
Size: 10,000 SF
Reference: Gary Shettle, ACES, (203) 498-6835

EASTERN CONNECTICUT STATE UNIVERSITY, FINE ARTS INSTRUCTIONAL CENTER - WILLIMANTIC, CT

BVH is providing commissioning services for this new 120,000-SF, $63-million facility that will house the entire fine arts program for the campus. A main focus within the building are three performance venues, a 600-seat auditorium, 300-seat proscenium theatre and a 150-seat black box space. Additionally it will have support spaces, classrooms and faculty offices as well as a Lobby to accommodate large functions and an Art Gallery.

Completion Date: 2015
Size: 120,000 SF
Reference: Victor Ciancetta, Turner Construction Company, 203.783.8800

UNIVERSITY OF NOTRE DAME, CAMPUS CROSSROADS, O'NEILL HALL OF MUSIC, NOTRE DAME, IN

Featuring three new buildings, Campus Crossroads brings academics, athletics, and student life together. BVH provided civil, mechanical, electrical, plumbing/fire protection, technology design and commissioning services for the Campus Crossroads project at UND.

O'Neill Hall of Music provides much needed space for the Music Department and features two rehearsal halls, two formal performance spaces, a music library, a music lab for studio production, a lecture hall, classrooms and seminar rooms, practice rooms, four organ practice rooms, and faculty offices.

Completion Date: 2018
Size: 836,000 SF
Reference: Mark Hummel, P.E., Asst. Director of Utilities & Maintenance
(574) 631-4452

Relevant Experience | page two

PLATT HIGH SCHOOL - MERIDEN, CT

Commissioning services for a school renovation and addition to meet new standards, code updates and programmatic enhancements, and create new classroom wings. The commissioning includes all new MEP, fire protection, communications, and life safety systems.

Completion Date: Phase 1 completed 2015; ongoing until 2017
Size: 247,700 SF
Contact: Michael Grove, Asst. Superintendent, Meriden Schools, 203-630-4163

MALONEY HIGH SCHOOL - MERIDEN, CT

BVH is performing commissioning services for a school renovation and addition project to meet new standards, code updates and programmatic enhancements, and create new classroom wings. The new construction and renovation will be serviced by entirely new systems which include: HVAC systems along with the potential for geothermal, fuel cell and cogen systems and energy management control systems.

Completion Date: 2016
Size: 256,550 SF
Contact: Michael Grove, Asst. Superintendent, Meriden Schools, 203-630-4163

CHARLES H. BARROWS STEM ACADEMY - WINDHAM, CT

New, K-8 magnet school with capacity for 540 students. STEM is an acronym for Science, Technology, Engineering and Mathematics. Focusing on these subjects, the facility offers the latest technology equipment in its classrooms and library/media center, as well as in its laboratories for oceanography, LEGO®/Robotics and distance learning.

Completion Date: 2014
Size: 83,700 SF
Contact: Norman Benjamin, Program Manager, ARCADIS U.S., Inc., 860-704-6100

ROBERTO J. CLEMENTE LEARNING ACADEMY - NEW HAVEN, CT

BVH is providing commissioning services for a new 75,600-SF K-8 school with a separate 5,000-SF central utilities plant. The school is centered around a courtyard and contains a library/media center, computer labs, science labs, and art and music rooms. Commissioning work included HVAC systems, energy management, control systems, fire protection systems, ice storage energy systems and fuel cells.

Completion Date: 2011
Size: 80,600 SF
Contact: Gilbane Building Co., Web Grouten (203) 946-2812

Relevant Experience | page three

ASIAN STUDIES ACADEMY AT BELLIZZI SCHOOL - HARTFORD, CT

Commissioning services for the renovation of the Asian Studies Academy at Bellizzi School, a PreK-8th grade facility. The project replaced the existing hot water boiler heating system and installed HVAC-related equipment for ventilation and make up air requirements to provide for the environmental needs of the space. The project was completed in phases.

Completion Date: 2013
Size: 118,000 SF
Contact: Sal Salafia, Arcadis/O&G, Owner's Representative (860) 626-6432

ACHIEVEMENT FIRST, AMISTAD HIGH SCHOOL - NEW HAVEN, CT

Commissioning services for a new school for 550 students. The facility was designed to meet High Performance Building Construction Standards.

Completion Date: 2015
Size: 80,000 SF
Contact: Lisa Desfosses, Vice President, Facilities, Achievement First, 203- 773-0390

M.D. FOX SCHOOL - HARTFORD, CT

Commissioning services for the renovation of a four-story, reinforced concrete, steel and brick masonry PreK-8 school constructed in 1924. Commissioning included completely new mechanical, electrical, plumbing and fire protection systems for this renovate-as-new building consisting of classrooms, art, music, science and library specialty areas, and other resource and special education requirements, administrative and support areas, recreational facilities, community space and dining areas.

Completion Date: 2013
Size: 140,000 SF
Contact: James Foote, Program Manager, ARCADIS/O&G, 860-906-1577

COMPLIANCE WITH

CERTIFICATION REQUIREMENTS

Compliance with Certification Requirements

BVH's Commissioning Department, as illustrated by our past experience, has significant experience providing commissioning services for Connecticut High Performance Building Standard projects. Representative projects include:

- Waddell Elementary School - Manchester, Connecticut
- New Haven Academy - New Haven, Connecticut
- Strong School - New Haven, Connecticut
- Region 16 Prospect Elementary School - Prospect, Connecticut
- John F. Kennedy & Joseph DePaolo Middle Schools - Southington, Connecticut
- Charles H. Barrows STEM Academy - Windham, Connecticut
- Orville H. Platt High School - Meriden, Connecticut
- Francis T. Maloney High School - Meriden, Connecticut
- Achievement First, Amistad High School - New Haven, Connecticut

BVH has a long standing relationship with the Connecticut Department of Construction Services and the DAS Office of School Construction, Grants, and Review. The firm also has extensive experience working on DAS projects some of which include Gateway Community College, Naugatuck Valley Community College New Technology Building, Eastern Connecticut State University Garages and Student Center, Great Path Academy at Manchester Community College, and Bridgeport Superior Court and Center for Juvenile Matters.

Our extensive project design and construction administration experience, the experience we have gained working on past DCS and DAS projects, our familiarity with their staff, and our deep knowledge of Connecticut's design and construction regulations makes us extensively familiar with state and local regulatory agencies.

BVH integrated services

FORMS

REQUEST FOR PROPOSALS
CITY OF BRISTOL, CONNECTICUT 06010

Professional Services – Enhanced Commissioning Agent
Memorial Boulevard Intra-district Arts Magnet School
RFP 2P19-054

Due Date: **1:00 pm, November 16, 2018**

City of Bristol, Connecticut
Purchasing Department
111 North Main Street
Bristol, Connecticut 06010

In accordance with the City's requirements, the undersigned agrees to provide services as defined herein.

The undersigned is familiar with the conditions surrounding this Request for Proposals, is aware that the City reserves the right to reject any and all proposals, and is making submission without collusion with any other person, individual or corporate.

Witness Maria A. Lotz — Signature

BVH Integrated Services, P.C. — Company Name
Karl F. Frey, P.E. — Printed Name

206 West Newberry Road — Address
CEO — Title

Bloomfield — Town
CT — State
06002 — Zip
11-14-2018 — Date

06-0841230 — Federal ID #
860-286-9171 — Telephone Number

karlf@bvhis.com — Email address
860-242-0236 — Fax Number

CITY OF BRISTOL, CONNECTICUT
NON-COLLUSION CERTIFICATION

The undersigned certifies under penalty of false statement that this proposal or contract has been made, submitted and executed in good faith and without collusion or fraud with any other person, and without any agreement designed to limit independent bidding or competition. As used in this certification, the word "person" shall mean any natural person, business, partnership, corporation, union, committee, club or other organization, entity or group of individuals.

I further certify that I have not provided or directed to be provided gifts, meals, or gratuities, as defined in Sec. 2-129(b) of the Bristol Code of Ordinances to any official or employee of the City of Bristol responsible for awarding or administering this bid or contract.

Please complete and sign

Legal Name of Bidder: BVH Integrated Services, P.C

Business Address: 206 West Newberry Road

Bloomfield, CT 06002

Name of Authorized Agent Karl F. Frey, P.E. Title: CEO

Phone: 860-286-9171 Fax: 860-242-0236

Signature: [signature] Date: 11.14.2018

Employment
Information Form

City of Bristol

Workplace Analysis Affirmative Action Report
Employment Information Form

Purchasing Department
111 North Main Street
Bristol, CT 06010

Company Name	Contact Person	Phone Number	Date
BVH Integrated Services, P.C.	Darlene Rock	860-286-9171	11/06/2018
Street Address: 206 West Newberry Road			
City State Zip: Bloomfield, CT 06002			

Report all permanent full-time or part-time employees, including apprentice and on-the-job trainees. Enter the number on all lines and in all columns.

JOB CATEGORY	A. OVERALL TOTALS (sum of all columns, B-F Male & Female)	B. WHITE (not of Hispanic origin)		C. BLACK (not of Hispanic origin)		D. HISPANIC		E. ASIAN/PACIFIC ISLANDER		F. AMERICAN INDIAN OR ALASKAN NATIVE	
		Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Officers/Managers	26	22	3			1					
Professionals	16	15	1								
Technicians	66	54	6	3	1			2			
Sales Workers											
Office/Clerical	7		6		1						
Craft Workers (skilled)											
Operatives (semi-skilled)											
Laborers (unskilled)											
Service workers											
TOTALS ABOVE	115	91	16	3	2	1		2			

Do you use minority businesses as subcontractors or suppliers? [X] Yes [ ] No	Explain:
If CT based, do you post all employment openings with the State Of CT Employment Service? [ ] Yes [X] No	Explain:
Do you use an Affirmative Action Plan? [X] Yes [ ] No	Explain:

Describe your recruitment, hiring, training and promotion anti-discrimination practices.

BVH encourages and sponsors memberships in a host of professional organizations for its employees and provides for the continuing education needs of staff members. Professional organizations like ASHRAE and NEHES are vital to keeping our professional staff current. They provide critical information on new technologies and developments in the field of engineering and related topics. We also have regular in-house Lunch-and-Learns where you'll have a bite while learning about new technologies and products and earning continuing education credits.

Reference Contract Number 2P19-054